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Acute Coronary Syndromes

TNF-A/MIR-125B INVOLVED IN CARDIAC MICRO-INFARCTION AND DYSFUNCTION AFTER CORONARY MICROEMBOLIZATION IN MINI-PIGS

Poster Contributions
Poster Hall B1
Sunday, March 15, 2015, 9:45 a.m.-10:30 a.m.

Session Title: Acute Coronary Syndromes: Basic
Abstract Category: 1. Acute Coronary Syndromes: Basic
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Authors: *Zhangwei Chen, Yuanyuan Cao, Juying Qian, Junbo Ge, Zhongshan Hospital affiliated to Fudan University, Shanghai, People's Republic of China*

Background: It has been demonstrated that microRNA-125b (miR-125b) plays a critical role on inflammatory response. However, it is unclear about myocardial expression of miR-125b and its association with TNF-α in the cardiac dysfunction after coronary microembolization (CME) in mini-pigs.

Methods: Fifteen mini-pigs were divided into Sham-operation group (n=4), CME group (n=6) and adalimumab pre-treatment group (n=5) (TNF-α antibody, 2mg/kg intracoronary injection before CME). Magnetic resonance imaging (3.0-T) was performed at baseline, 6th hour and one week after procedure. Myocardial expressions of TNF-α was detected by western blot and immunohistochemistry. Myocardial expressions of miR-125b were detected by Real-time PCR method. Furthermore, HE staining was also applied to demonstrate the presence of myocardial micro-infarcts.

Results: Compared with sham-operation group, TNF-α expression (serum level and myocardial expression) and average area of micro-infarction were significantly increased in CME group. Myocardial expression of miR-125b was also increased significantly after CME (2.93±0.84 vs. 1.38±0.66, P=0.024). Cardiac function detected by MRI was decreased in CME group. We found that pre-treatment with adalimumab not only significantly improved LVEF after CME (6th hour: 56.4±3.3% vs. 51.0±2.9%, P=0.038; one week: 57.2±5.2% vs. 52.7±3.9%, P=0.040), but also decreased the expression of miR-125b (1.59±1.12 vs. 2.93±0.84, P=0.033), which had a positive relation with .the average area of micro-infarction (r=0.426, P<0.05).

Conclusion: TNF-α/miR-125b might be involved in cardiac dysfunction after CME, which was associated with the area of micro-infarction.